# TV CORE

*January 2025* *Monthly Newsletter*

## BRADY LAPKE

Brady is currently an SRA 1, having spent over a year and a half in the role. With a background in cancer research at OHSU's CEDAR program, Brady shifted to virology to expand his scientific expertise. Brady is a Washington native who developed a passion for research at a magnet high school focused on STEM. After high school, Brady moved to Oregon to study biology at the University of Portland. It was there that he met his fiancé, Dani. In 2023, they moved to San Diego to support Brady's grandparents, although most of his family, including his three younger sisters, remain in the Pacific Northwest.

Outside of work, Brady enjoys running, having completed a half marathon recently with more to come, and rock climbing, which he has done since high school. Although it was initially a graduation requirement for him, he kept with it and ended up nationally ranked in the top 30 in both Sport and Speed climbing his senior year. He loves to read, particularly sci-fi and Pacific Rim history, and loves experimenting with new recipes with Dani. Brady's family are big basketball and hockey fans, although he is the only one of them to support the Portland Trailblazers

Brady is going back to school to pursue a Master's in Biology at Point Loma Nazarene University. We are so happy for you to continue your academic career Brady!

## PROJECT HIGHLIGHT

"The study, **"Anatomical, Subset, and HIV-Dependent Expression of Viral Sensors and Restriction Factors,"** examines how immune cells express viral sensors and restriction factors (VISORs) across various tissues and how these patterns influence HIV susceptibility and persistence.

This work was made possible by the incredible dedication of our Last Gift team and participants. The high-quality samples obtained through the Last Gift study were essential in enabling this research, providing opportunity to explore HIV dynamics across diverse anatomical sites.

Using VISOR-CyTOF technology, researchers profiled 19 proteins across immune cell types and tissues. Myeloid cells, particularly those expressing high levels of SAMHD1, show strong HIV restriction, while lymph node CD4+ T follicular helper (Tfh) cells display a VISOR profile that promotes latency, with low levels of integration inhibitors like TRIM28 but high levels of transcription and translation inhibitors (e.g., BRD4, IFITM1). HIV preferentially fuses with CD4+ T cells that have low VISOR expression but upregulates VISORs in productively infected cells, reflecting an antiviral response.

Furthermore, pre-infection induction of VISORs via type I interferon significantly restricts HIV infection. The findings emphasize tissue- and subset-specific immune responses in shaping HIV dynamics, highlighting the unique roles of mucosal tissues like the gut and lung, which exhibit high VISOR expression than when compared to inactive lymphoid tissues.

## LOOKING FORWARD TO FEBRUARY

B**lack History Month** honors the contributions of Black individuals and highlights ongoing efforts toward racial equity.

**Lunar New Year festivities continue** globally, concluding with the vibrant Lantern Festival on February 12 to welcome the Year of the Snake.

**Valentine's Day** on February 14 celebrates love and connection.

February 7 marks **National Black HIV/AIDS Awareness Day**, emphasizing support for Black communities disproportionately affected by the epidemic. With the CROI 2025 conference on the horizon, February serves as a moment to celebrate progress and strengthen commitments to global health and equity.

## “VIRAL AND MICROBIAL ENVIRONMENT IN THE MALE GENITAL TRACT OF PEOPLE LIVING WITH HIV”

This study, presented by Aleks (pictured below), explores the viral and microbial environment in the male genital tract (MGT) of people living with HIV (PWH), a key reservoir where HIV can persist despite antiretroviral therapy (ART). Tissues that were collected during rapid autopsies from 18 participants in the Last Gift Study were analyzed to quantify HIV, CMV, and EBV DNA/RNA, as well as to characterize the microbiome. EBV DNA was strongly associated with higher levels of HIV DNA and RNA, whereas CMV DNA had no significant impact. Two bacterial genera, *Rhodospirillaceae* and *Pseudonocardia*, were linked to elevated HIV RNA levels, indicating that microbial-driven inflammation may contribute to viral persistence despite ART. These findings underscore the complex interplay between viral and microbial factors in the MGT, offering potential avenues for targeting HIV reservoirs.

PICTURED: ALEKS WITH HIS POSTER

“Aleks did an outstanding job presenting his poster this past month! His hard work and dedication shone through, and it’s a testament to the support and mentorship that this team fosters. Let’s all take pride in this accomplishment—it reflects the strength of our collective efforts.” - Sara

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## TRY SOMETHING NEW

In February 2025, San Diego will host a series of enchanting Candlelight concerts, offering audiences intimate musical experiences illuminated by the soft glow of candlelight. These performances span a variety of genres and are set in some of the city's most iconic venues.

Candlelight Concerts in San Diego – February 2025:

- **February 1:** Candlelight: A Tribute to Adele at Star Theatre.
- **February 6:** Candlelight: The Best of The Beatles at Fleet Science Center.
- **February 7:** Candlelight: Best of Bridgerton on Strings at Star Theatre.
- **February 14:** Candlelight: Valentine's Day Special at San Diego Natural History Museum.
- **February 16**: Candlelight: Valentine's Day Special at Kroc Center.
- **February 21**: Candlelight: Tribute to Taylor Swift at San Diego Natural History Museum.
- **February 22:** Candlelight: Coldplay & Imagine Dragons at San Diego Natural History Museum.
- **February 28:** Candlelight: Mozart’s Requiem and More at Mission San Luis Rey.

These concerts are renowned for their unique ambiance, combining the allure of candlelit settings with live musical performances. Whether you're a fan of classical masterpieces or contemporary hits, there's a Candlelight concert to suit your taste this February in San Diego.